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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,173	03/29/2001	Karsten Buse	06618/618001/CIT3194	9127

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EXAMINER

ASSAF, FAYEZ G

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/823,173

Applicant(s)

BUSE ET AL.

Examiner

Fayez G. Assaf

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 38-41, 49-55 and 59 is/are allowed.
- 6) ☒ Claim(s) 1, 4, 9-11, 13-19, 21, 22, 25-27, 30, 31, 60, 64, 72-76, 83-85, 87-89 and 93-95 is/are rejected.
- 7) ☒ Claim(s) 20, 61, 63, 77, 90 and 96 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 April 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Continuation of Disposition of Claims: Claims pending in the application are 1,2,4-7,9-11,13-22,25-27,30,31,38-41,43,49-55,59-61,63,64,72-77,83-85,87-90 and 93-96.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1, 9, 17, 22, 27, 60, 72, 74, 75, 85, 87 and 88 are rejected under 35 U.S.C. 102(e) as being anticipated by Domash (5,937,115).

Domash discloses a tunable optical device (see Abstract) comprising, a holographic element (ESBG 12 of Fig. 1), having a single hologram therein which has a predetermined relationship to a plurality of wavelengths (i.e. Bragg matching conditions), a wavelength varying element (24A and 24B of Fig. 1), coupled to the holographic element, and varying said predetermined relationship, and a first optical system (16 B of Fig. 1), handling first wavelengths of an optical signal, which pass

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through the holographic element without being changed by the hologram as an output signal (i.e. when E-field is off), and a second optical system (18B of Fig. 1), separated from the first optical system, and handling a second optical signal including the plurality of wavelengths having said predetermined relationship as varied by the wavelength varying element (line 52 of Col. 9 to line 19 of Col. 10).

Regarding claims 60 and 88, Domash discloses a first path for light being not matched to the single hologram extending in a first direction (from 16A to 16B in Fig. 1), and a second output path, which is Bragg matched extending along a second path (from 16A to 18B in Fig. 1).

Regarding claim 72, Domash discloses the Bragg matching relationship to a plurality of wavelengths depending inherently on an orientation parameter (i.e. when the E-field is active).

Regarding claims 17, 74, 75 and 87, Domash discloses the hologram being a diffraction grating (line 52 to line 63 of Col. 2).

Regarding claim 9, Domash discloses the output signal extending in substantially a same direction as an input signal (see Fig. 1).

Regarding claim 22, Domash discloses the holographic element including the hologram forming a grating as part of the

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holographic element, the grating interacting with a wavelength based on a characteristic of a material forming the holographic element (line 19 to line 26 of Col. 8).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4, 10, 11, 13-16, 18, 19, 21, 25, 26, 30, 31, 64, 73, 76, 83, 84, 89 and 93-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Domash (US 5,937,115), hereinafter '115 patent, in view of Domash et al. (US 6,567,573), hereinafter '573 patent.

Domash ('115 patent) teaches the claimed invention except an explicit teaching with regard the following:

- Second optical signal being a drop output signal which travels in a different direction than either an input signal or output signal.

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- Double prism forming a retroreflecting operation to reflect the output signal in the opposite direction.
- Optical detector receiving the drop signal, and converting the drop signal to an electrical signal.
- A laser element (DFB) receiving the electrical signal and converting the electrical signal to an optical signal.
- Second signal traveling in a same or opposite direction (at 180 degrees) of the direction of first signal.
- A GRIN lens.
- The dropped signal includes only one wavelength.
- Changing a direction of dropped signal using the hologram.
- The first optical output signal including the others of the wavelengths and a second optical output signal including the one of the wavelengths traveling in different directions.
- The output optical beam includes a first output optical beam and a dropped optical beam, extending in different directions, the first output optical beam

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having at least one frequency band removed relative to the input optical beam.

- The input optical beam includes a first input optical beam, and a second input optical beam with at least one wavelength range to be added to contents of the first input optical beam, the first and second input optical beams coming from different directions.
- An input fiber, an output fiber, dropped output fiber, wherein selected wavelengths are diffracted to dropped output fiber.
- Repeater element, receiving an output signal, converting the output signal to an electrical signal, and reconvertng the electrical signal to an optical signal.
- Double prism forming reflecting the output signal in the opposite direction, and located in a direction where it will not contact a dropped optical signal for the dropped output fiber.

However such features are conventional in optical communication devices. Domash ('573 patent) teaches a tunable add/drop filter which has different configurations with respect



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to the input/output add or drop ports as can be seen in Fig. 5A, 5B, 5E, 6A, 6B, 8A, 8B, 10A-10E, 20 and 21.

It would have been obvious, at the time the invention was made, to a person having ordinary skill in the art to provide such elements and configurations of the add/drop/output ports for the purpose of meeting particular application requirement. Furthermore, it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

***Allowable Subject Matter***

Claims 38-41, 49-55 and 59 are allowed.

Claims 2, 5-7, 20, 61 and 63 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 2, 5-7, 20, 61, 63, 77 and 90 are allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest physically moving or mechanically rotating the hologram or the angle of incident beam with respect to the orientation of the single hologram as set forth in the claimed combination.

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Claims 38-41, 49-55 and 59 are allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest adjusting the single hologram to separately optically process the one of said wavelengths differently from others of said wavelengths as set forth in the claimed combination.

Claims 77 and 96 are allowable over the prior art for at least the reason that the prior art fails to teach or reasonably suggest the tuning system, which tunes the way in which the input and output beams are different by varying the effective period length of the single holographic grating as set forth in the claimed combination.

### ***Response to Arguments***

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

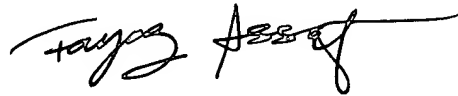
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fayez G. Assaf whose telephone number is (703) 306-5526. The examiner can normally be reached on 8-5 M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (703) 305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Fayez G. Assaf  
Examiner  
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A handwritten signature in black ink, appearing to read 'Fayez G. Assaf', with a long horizontal flourish extending to the right.

FA  
12/29/03